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A NOTE ON *PATIRIA OCELLIFERA* GRAY, 1847

(*Asteroidea*)

This short note was prompted by the recent discovery of a large Asterinid starfish in the Mediterranean, recorded by Professor Tortonese (Doriana, vol. 3, no. 118, 1962, pp. 1-5, 2 pls.) under the name of *Asterina stellifera*. The description and photographs given by Prof. Tortonese agreed closely with the type specimen of Gray's little-known species *Patiria ocellifera*, which has never been figured and of which the locality was unknown. To rectify the lack of published illustrations, some photographs were taken and a detail drawing was prepared, which are included here together with a description of the specimen as revealed by partial removal of some of the surface skin, spinelets, pedicellariae and latterly of the superficial secondary plates.

Patiria ocellifera Gray

Patiria ocellifera Gray, 1847, *Proc. zool. Soc. London*, p. 82; 1866, Synopsis of the species of starfish in the British Museum, (London), p. 17; Perrier, 1875, Revision de la collection de Stellérides du Museum d'Histoire Naturelle de Paris, (Paris), pp. 324-325 [also in *Arch. Zool. exp. gén.*, 5, 1876, p. 244]. (Non *Patricia* (sic) *ocellifera* Tennison Woods, 1879, *Trans. Phil. Soc. Adelaide*, p. 92, which is probably a mistake for *Nectria ocellifera* as suggested by H. L. Clark, 1946, Echinoderm fauna of Australia, p. 142).

Gray's short description of the unique holotype of *Patiria ocellifera* was supplemented by a longer one given by Perrier, but still without any illustrations. It should be noted that Perrier mistook the subambulacral spines for the innermost series of ventro-lateral spines, due to the apparent subdivision of the adambulacral plates.

DESCRIPTION. R is 80-81 mm.; r is 33-34 mm.; br at half R from the centre of the disc is 2 mm.

The specimen is dry and rigid. The five arms are triangular but joined by rounded interbrachial arcs. The upper surface is now more or less flat, but in life was probably slightly arched. The sides are almost or quite vertical, the ventro-lateral angle being close to 90° in most places, though distally it is more acute than proximally. The ventral surface is flat.

Except near the tip of each arm, where several rounded or transversely oval areas of fine spinelets stand out from the surface, the whole aboral side superficially appears to be coated uniformly with fine spinelets. It is just possible to see with the naked eye that a large proportion of these are aligned in pairs and each is curved into a bow so that they form forcipiform (but sessile) bivalved pedicellariae. Magnification shows that these pedicellariae are interspersed among small clusters of slightly incurved, tapering, more or less pointed spinelets, of which there are mostly three to seven in each cluster. The spinelets are slightly coarser than the pedicellariae but of about the same length, usually 0.5-0.6 mm. long.

In the preserved specimen most of the pedicellariae and spinelets are now prostrate and it can be seen that each pedicellaria or cluster arises from a single, very small, convex plate, of which the diameter is often less than the length of the pedicellaria or spinelets that it bears.

At the very centre of the disc all the plates have spinelets and there are no pedicellariae over an area about 5 mm. in diameter.

The oval madreporite is situated between 11.0 and 15.5 mm. from the centre in one interradius and is surrounded by spinelet-bearing plates, several of which are enlarged and outstanding, carrying up to about 25 spinelets, the length of which may reach 1.0 mm.

The projecting rounded areas towards the tip of each arm measure up to 4 mm. in maximum (transverse) diameter and consist of patches of up to about 100 crowded conical spinelets arising from the central part of a large convex plate. Around each patch of spinelets the surface of the plate is raised into a number of glassy knobs of the sort called crystal-bodies by Döderlein, forming a belt of varying width between the spinelets and the small secondary plates which overlie the edges of the large primary plates and which bear either a pedicellaria or a small cluster of spinelets like the proximal secondary plates.

The spinelets and pedicellariae were removed from most of one arm. This revealed the fact that on the disc and arm bases the primary plates are almost completely concealed by the overlying secondaries, which are very numerous. At a distance of 30 mm. from the centre, the exposed parts of the plates measure only 1.0-1.5 mm. in diameter.

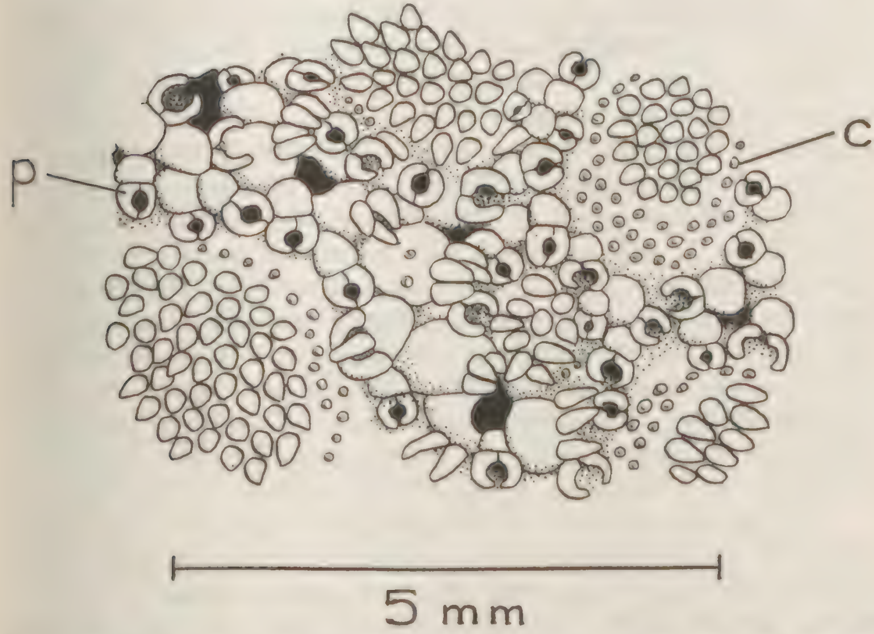


Fig. 1. *Patiria ocellifera* Gray; holotype; detail of some aboral plates from the distal part of an arm with spinelets and pedicellariae; c crystal-bodies, p pedicellaria.

Further distally the primaries are enlarged and in addition the secondaries are fewer in number, some of them also being enlarged almost to the same magnitude as the primaries. On the arm denuded there are proximally five series of primary plates, one of which is midradial. At about 40 mm. (half R) from the centre, the midradial series gives way to a broader area of larger, irregularly placed primaries, while the adjacent dorso-lateral series on each side diverge slightly though continuing almost to the tip of the arm so that they border the area of larger median plates. On the other arms the structure is probably similar, since the enlarged plates appear to have no very regular arrangement. Each denuded median distal plate is purplish in colour on the central raised part where the spinelets were borne; the edges, which were overlain by secondary plates, are white. The removal of the secondary plates shows that the primaries are only slightly imbricating, some of them having one or more proximal lobes overlying part of the distal edge of an adjacent plate. In some cases the large plates seem to have grown apart and linkage between them is provided by enlarged secondary plates. Most of the enlarged primaries have five to seven short lobes and could be described as irregularly polygonal. None of them are at all crescentic.

The specimen being dry, the papulae are not visible, though there are a number of small spaces between the secondary plates, without any apparent regular arrangement, which presumably housed them.

The sides of the body are almost vertical, though sloping inwards slightly towards the top. On the denuded arm, the second dorso-lateral series of plates on each side of the mid-radius runs over on to the side of the arm at about 40 mm. from the centre of the disc, its plates diminishing in size distally and running obliquely downwards to meet the marginal plates near the tip of the arm. The plates of the more lateral series below this are smaller but still fairly regular in shape and position; they similarly run downwards towards the marginal plates, the outermost or lowest series being the shortest. There are some secondary plates in the interstices between these lateral primaries.

Each of the two series of marginal plates numbers about 48 on each side of the arm. They are similar in size to the dorso-lateral plates that lie immediately above them. The two series correspond in position but the consecutive pairs are slightly separated by single smaller secondary plates placed between them in such a way that four marginal plates and one secondary in the middle form a quincunx. The inferomarginal plates project out from the surface to define the ventro-lateral angle.

The ventro-lateral plates are arranged in ten series, but only the innermost of these next to the adambulacral plates runs right to the tip of the arm; the fourth series consists of about 30 plates and runs for just over half the arm length while the tenth series has only three plates and is entirely interbrachial. The larger plates each have a prominent crest adradially, with an arc of crystal-bodies around its abradial slopes, visible only when the plate is denuded since the crest bears a row of three to six, usually four, outwardly inclined spines, those on the proximal adradial plates being about 3 mm. long, while the others that arise from plates nearer the margin or arm tip are reduced to a length of less then one millimetre. On some plates the serial arrangement of these spines in a line at right angles to the margin of the body is distinct, but on others the spines appear clustered.

The adambulacral plates have a stepped surface, the part next to the furrow and bearing the furrow spines being at a higher level (or when viewed from below stepped down slightly into the furrow). The outer part which bears the subambulacral spines is thickened. The fan of spines on the furrow margin of each plate numbers five on most of the proximal plates, giving way to four on the distal ones. These spines are slender and tapering and in the specimen as preserved are all (probably unnaturally) appressed outwards on to the two (rarely three) much wider and flatter subambulacral spines. Because of the change in level of the plate, the tips of the furrow spines only just overlap the bases of the subambulacral ones.

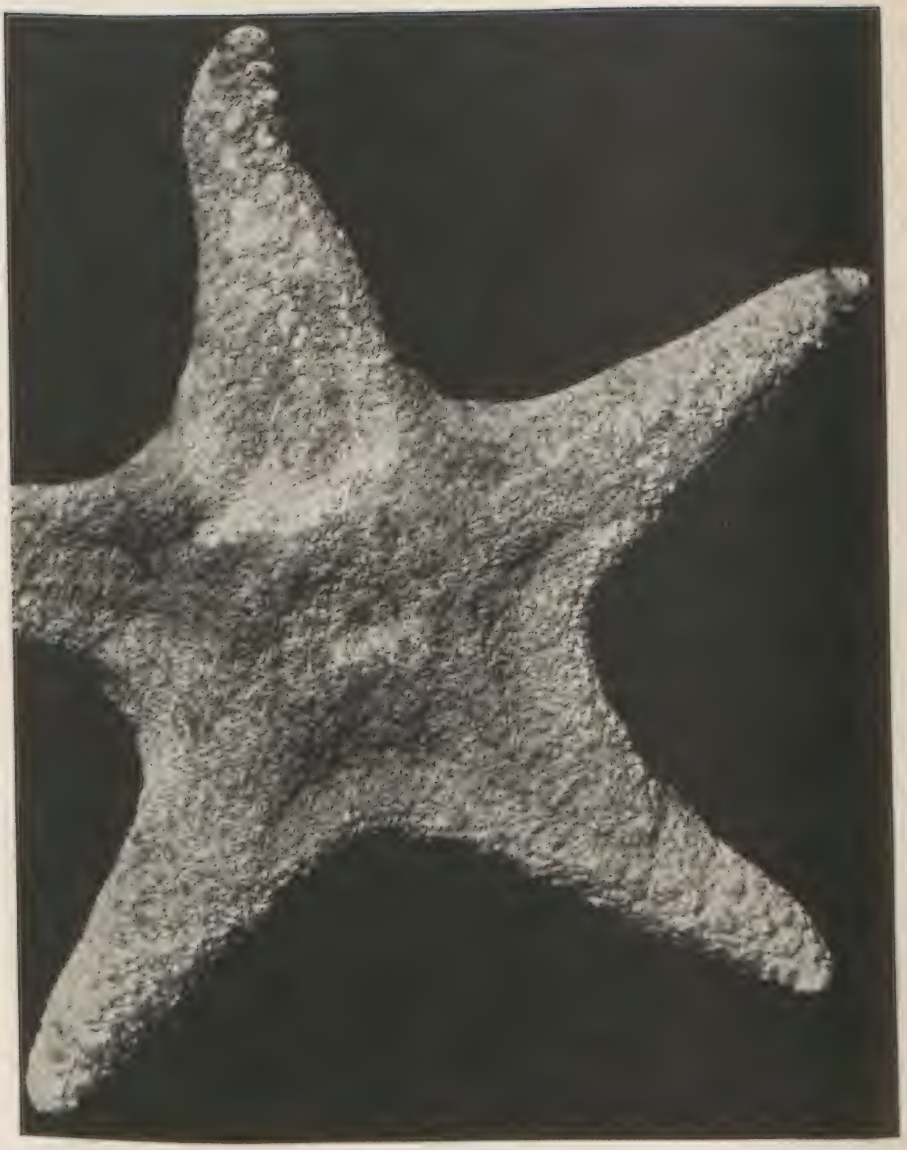
The two oral plates of each pair form a continuous furrow margin around the apex of the jaw but their thickened suboral parts are markedly divergent, leaving a noticeable space between them. This space is bridged internally towards its distal end by a bar-like plate and its external outer limit is formed by a triangular interradial plate at the head of the second series of oral intermediate plates. There are six furrow spines on each oral plate and about five thicker suboral spines.

RIASSUNTO

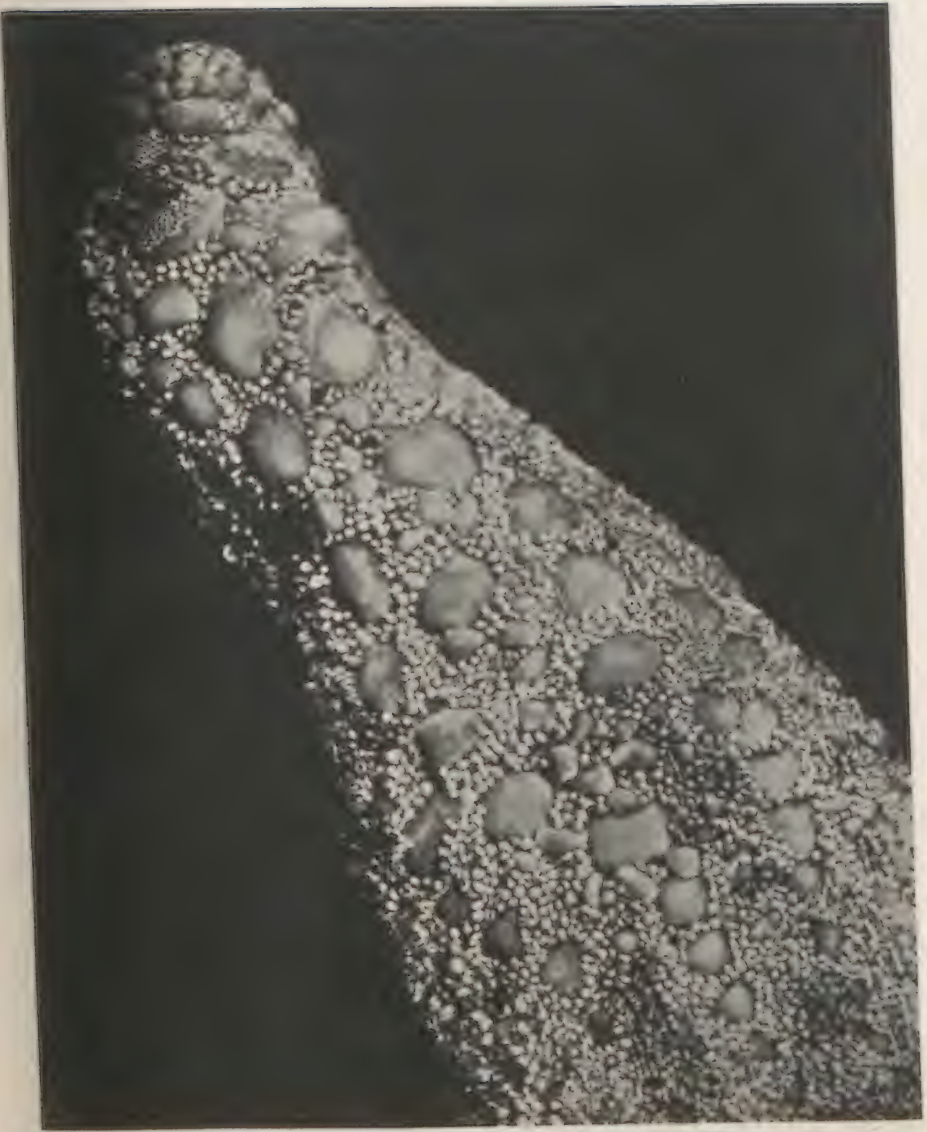
È data una nuova e completa descrizione dell'olotipo di *Patiria ocellifera* Gray (fam. *Asterinidae*). Esso è conservato nel British Museum (Nat. Hist.) e la sua provenienza è ignota.

SUMMARY

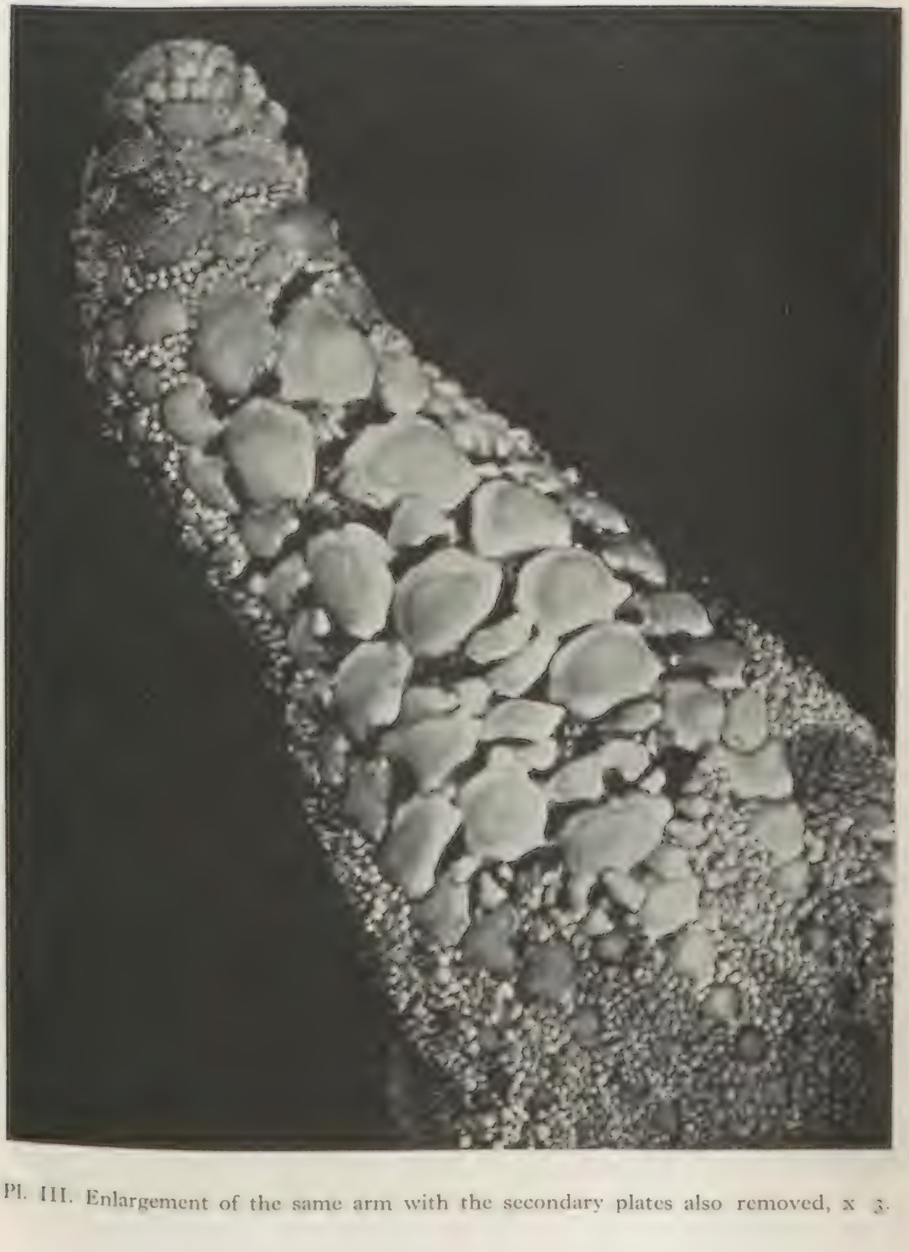
A new and full description is given of the holotype of *Patiria ocellifera* Gray (fam. *Asterinidae*). It is preserved in the British Museum (Nat. Hist.) and its locality is unknown.



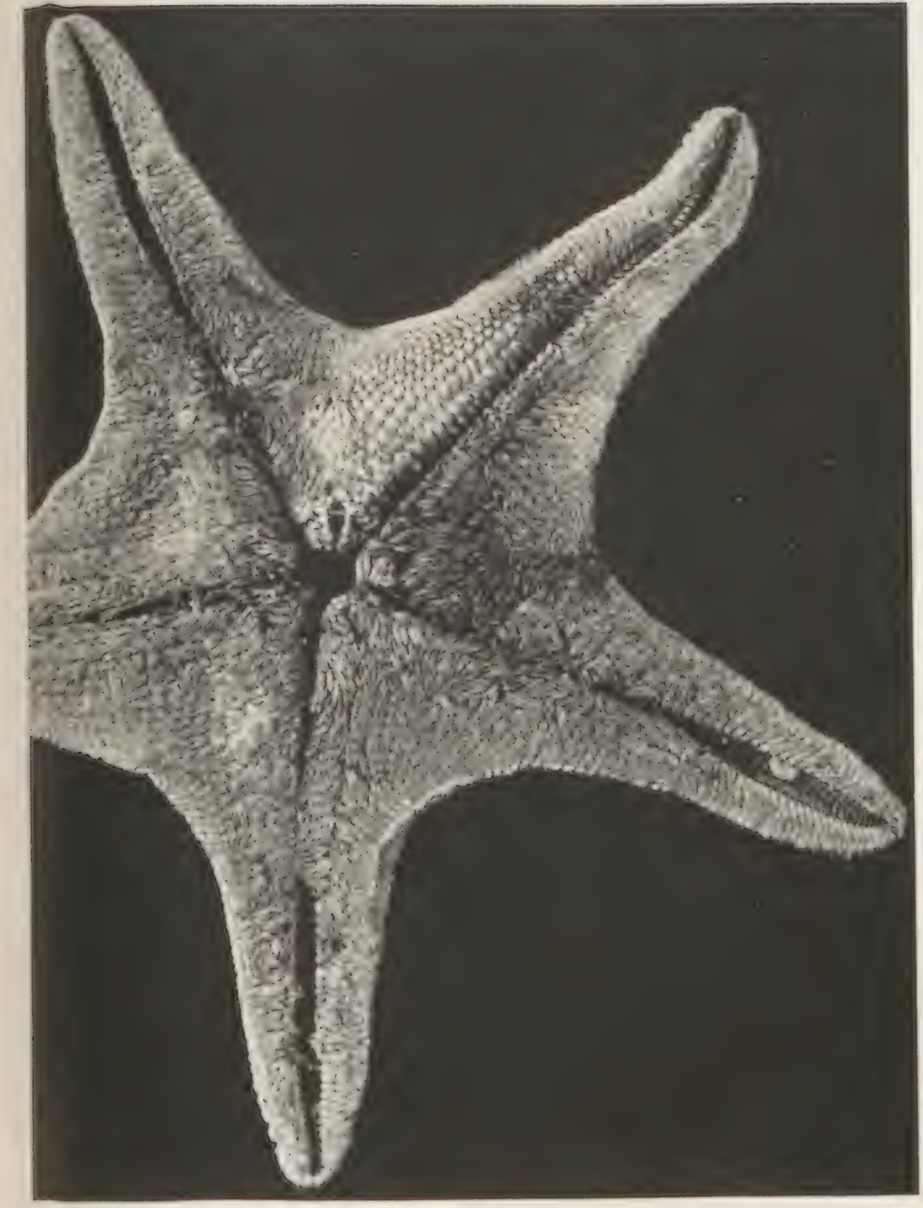
Pl. I. *Patiria ocellifera* Gray; holotype. British Museum registered number 1938.6.23.25; aboral view, x 1.



Pl. II. Enlargement of distal part of one arm with the spinelets and pedicellariae removed, x 3.



Pl. III. Enlargement of the same arm with the secondary plates also removed, x 3.



Pl. IV. Oral view, x 1.